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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/390,228 | 09/03/1999 | MAYUMI UNO | 10873.274US1 | 6547 |

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MINNEAPOLIS, MN 55402-0903

24
EXAMINER

ANGEBRANNNDT, MARTIN J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1756 | |

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|----------------------------------|------------------|
| Office Action Summary | Application N . | Applicant(s) |
| | 09/390,228 | UNO ET AL. |
| | Examiner Martin J Angebranndt | Art Unit 1756 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7,9,11-27,29,31,50-54,56-64 and 74-77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7,9,11-27,29,31,50-54,56-64 and 74-77 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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1 The response provided by the applicant has been read and given careful consideration.

Responses to the arguments offered by the applicant are presented after the first rejection to which they are directed. The new oath has been received and made of record. The rejection based upon U.S. Patent No. 6,503,690 is withdrawn based upon the proper terminal disclaimer filed by the applicant as paper 23.

2 Claims 9,11,27,54 and 75 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

With respect to claim 9, these limitations are broader than those recited in the independent claim 1. (please cancel this claim)

With respect to claim 11, the claims should indicate that X is Si, Zr, Ti, or Al, as Sb is not embraced by the recitation for X and Ge is already recited in the independent claim. (also make this dependent upon claim 3)

In claim 27, S is already recited as present in claim 1.

In claim 54, c should be at least 0.4 to meet the limitation of claim 1.

In claim 75, the Sb containing materials are not embraced by claim 1.

3 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4 Claims 1-7,9,11-27,29,31,50-54,56-64 and 74-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. '363, in view of Yoshioka et al. JP 04-052188 and Shino et al. JP 05-274726.

Yoshioka et al. '363 in figure 3, shows a substrate, a 160 nm SiO₂-ZnS dielectric layer, GeTeSb nitride surface layer (20), an SbGeTe recording layer, a second 20 nm SiO₂-ZnS dielectric layer, a, Al reflective layer and a protective layer. This is provided on at least one of the recording layer surfaces. (7/8-34)

Yoshioka et al. JP 04-052188 in the example on page 4 is a substrate, a dielectric layer, an SbGeTe recording layer, a GeN layer, a second dielectric layer and a reflective layer.

Shindo et al. JP 05-274726 in the examples described in the abstract. The use of GeSiNH in the examples on page 15 and in the abstract. The nitrogen content may be from 40-80% and the silicon content may be from 30-90% of the remainder. (see formula in claim 2)

It would have been obvious to include additives, such as Si in the GeN protective layers of the invention of Yoshioka et al. '363 as modified by Yoshioka et al. JP 04-052188, based upon the disclosure of equivalent function as protective layers within Shino et al. JP 05-274726.

In the analysis of the Yoshioka et al. '363, the applicant ignores the nitride surface layer of the GeTeSb recording layer. This is considered to meet the barrier layer limitation of the claims. The Yoshioka et al. JP 04-052188 is applied to evidence that this would be desirable on the topside of the recording medium as well as below the recording layer as evidenced by Yoshioka et al. '363 therefore rendering it obvious to provide a GeN layer on both sides of the recording layer. The examiner notes that the Yoshitomi et al. JP 63-171453, Kinou et al. JP 03-248338, JP 01-276453 and Shino et al. JP 05-274726 are each analogous art as they concern

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laser recording media with metallic recording layers and therefore they are considered to be relevant to the issues of protection of the recording layer, thereby rendering the addition of Si, Al and/or Zr obvious to one skilled in the art.

The applicant argues that the magneto-optical recording media are from a non-analogous art as they use the Kerr effect in recording. The examiner notes that the Kerr effect is measured using optical techniques and notes that the media are recorded and read optically. The examiner further notes that as these are optically recordable media they are analogous and the motivation for using protective layers is the same as in other optically recordable media. The examiner notes that the JP 03-248338 attributes improved temperature and humidity resistance to the protective layer, the JP 01-276453 attributes reduced stress cracking to the protective layer, Jp 63-171453 describes longer recording layer life, Shindo et al. JP 05-274726 describes improved long term reliability and easy protective film formation and JP 04-069833 teaches improved stability. All of these improvements would also be desirable in other optically recordable media and in each case, the layer is directly adjacent to the recording layer. Therefore one skilled in the art would only substitute these for the GeN or GeNO layers of the primary references, rather than other layers, particularly in view of the similarity in their composition. The issue of being adjacent to the substrate is to make it clear that these are in a position to act as barrier layer to prevent materials from passing through them, such as water, oxygen, residual solvents or the like, from other layers. The rejection stands

In response to the arguments of 02/28/02, the position of the examiner in terms of claims interpretation is clear for the record and the dielectric layers of Yoshioka et al. '363 and Yoshioka et al. JP 04-052188 are exactly those disclosed on page 20 at line 11-16 of the instant

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specification as the protective layer materials and notes that the nitrided layers of these references are disclosed as being between the recording layer and the protective/dielectric layer in the Yoshioka et al. '363 and Yoshioka et al. JP 04-052188 references. The examiners position is that it would have been obvious to use similar layers to the GeN layers of Yoshioka et al. '363 and Yoshioka et al. JP 04-052188, such as those of Yoshitomi et al. JP 63-171453, Kinou et al. JP 03-248338, JP 01-276453 or Shino et al. JP 05-274726 in place of the GeN layers for these references with a reasonable expectation of these acting in a similar manner does to their disclosed use within the optical recording media art and their chemical similarity. The examiner has considered the data available in the specification and notes that there is no benefit disclosed which is commensurate with the scope of the coverage sought. The examiner notes that the data in table 9 evidences the equivalence of GeN layers for nitrogen levels of 10 and 20 % and does not provide a basis for unobvious results. The same can be said for tables 11-13. Table 14 evidences no difference for nitrogen levels of 10% in GeONX layers. The applicant may wish to consider this data when formulating the next amendment. The rejection stands. Yoshitomi et al. JP 63-171453, Kinou et al. JP 03-248338, JP 01-276453 or Shino et al. JP 05-274726.

The applicant provided no arguments beyond those addressed above or in the advisory action of 10/16/2002. The examiner notes that for 10 and 20% nitrogen content the additive in amounts of 25% apparently has no effect, based upon the data in table 9 on page 71. The examiner also notes that table 11 evidences similar data showing no additional benefit for the addition of Cr for up to 50% at a 20% nitrogen partial pressure and similar data for up to 5% Cr at 30% nitrogen partial pressure. Therefore any showing that the applicant might contemplate

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would require that the claims be commensurate in scope with the showing to provide a basis for patentability of the claims.

In response to the applicant's arguments, in table 11, the data indicates that adding Cr in amounts of 10-50% is beneficial for GeN at nitrogen pressures of 30 and 40% (50 and 56% nitrogen content in the film respectively). The results for 20-40% nitrogen pressure in the sputtering gas are comparable to 37% nitrogen (20% gas pressure) content with no Cr. In table 12, the data indicates that adding Mo in amounts of 5-50% is beneficial for GeN at nitrogen pressures of 30 and 40%. The data for 40% is poorer than that at lower nitrogen pressures without Mo, but the data for 20-30% nitrogen is the same. In table 13, the data indicates that adding Ti in amounts of 5-40% is beneficial for GeN at nitrogen pressures of 30 and 40%. The data for 40% is poorer than that at lower nitrogen pressures without Mo, but the data for 20-30% nitrogen is the same. Table 14 illustrates that similar benefits can be ascribed to the addition of other elements to germanium oxynitrides, although lower nitrogen pressures are preferred, but are not better or different than GeON at 10 % gas pressure, until nitrogen pressures of 30-40%, where they have poorer performance. While some of these embodiments have divergent performance from the baseline GeN or GeON, the entire scope of coverage sought does not, therefore the showing is not commensurate with the scope of coverage sought. The limitations of claims 76 and 77 are not nearly as removed from the prior art as argued. The applicant is more likely to prevail along the line of the other independent claims.

5 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

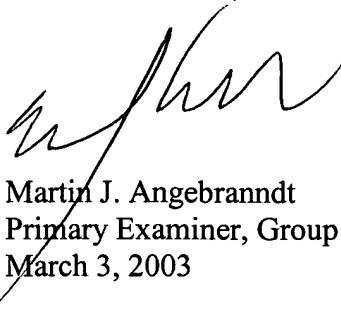
6 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Angebranndt whose telephone number is (703) 308-4397.

I am normally available between 7:30 AM and 5:00 PM, Monday through Thursday and 7:30 AM and 4:00 PM on alternate Fridays.

If repeated attempts to reach me are unsuccessful, my supervisor may be reached at (703) 308-4552.

Facsimile correspondence should be directed to (703) 892-9311.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.



Martin J. Angebranndt
Primary Examiner, Group 1750
March 3, 2003